

IN THE CLAIMS

Please amend the claims as follows:

1-30. (Canceled)

31. (New) A method comprising:

determining a reserved input/output (I/O) bandwidth for an I/O controller;
determining available I/O controller bandwidth by subtracting reserved I/O bandwidth from total I/O bandwidth;
determining number of devices actively communicating with the I/O controller;
assigning an initial I/O bandwidth to each of the active devices, wherein the initial I/O bandwidth is the available I/O controller bandwidth divided by number of active devices;
determining I/O bandwidth requested for each of the active devices;
determining a first set of active devices that have less I/O bandwidth requested than the initial I/O bandwidth assigned thereto and thus have extra I/O bandwidth;
determining a second set of active devices that have more I/O bandwidth requested than the initial I/O bandwidth assigned thereto and thus require extra I/O bandwidth;
determining a third set of active devices that are in the second set and have a priority assigned thereto; and
reallocating the extra I/O bandwidth from the first set to a combination of the second set and the third set, wherein reallocation to the third set is given priority over the reallocation to the second set.

32. (New) The method of claim 31, wherein said reallocating the extra I/O bandwidth includes

decreasing the initial I/O bandwidth of each of the active devices in first set to the I/O bandwidth requested therefore; and
increasing the initial I/O bandwidth of the combination of the second set and the third set based on the total amount of extra I/O bandwidth associated with the first set.

33. (New) The method of claim 32, wherein said increasing the initial I/O bandwidth includes
increasing the initial I/O bandwidth amount for the third set; and
if there is additional extra I/O bandwidth, increasing the initial I/O bandwidth amount for the second set.

34. (New) The method of claim 33, wherein said increasing the initial I/O bandwidth amount for the third set includes
determining number of devices in the third set;
calculating a priority I/O bandwidth add amount by dividing total amount of extra I/O bandwidth associated with the first set by number of devices in the third set; and
adding the priority I/O bandwidth add amount to the initial I/O bandwidth amount for the number of devices in the third set.

35. (New) The method of claim 33, wherein said increasing the initial I/O bandwidth amount for the second set includes
determining number of active devices in the second set;
calculating an I/O bandwidth add amount by dividing total amount of extra I/O bandwidth associated with the first set by number of active devices in the second set; and
adding the I/O bandwidth add amount to the initial I/O bandwidth amount for the active devices in the second set.

36. (New) An apparatus comprising:
circuitry that is capable of:
determining a reserved input/output (I/O) bandwidth for an I/O controller;
determining available I/O controller bandwidth by subtracting reserved I/O bandwidth from total I/O bandwidth;
determining number of devices actively communicating with the I/O controller;
assigning an initial I/O bandwidth to each of the active devices, wherein the initial I/O bandwidth is the available I/O controller bandwidth divided by number of active devices;

determining I/O bandwidth requested for each of the active devices;
determining a first set of active devices that have less I/O bandwidth requested than the initial I/O bandwidth assigned thereto and thus have extra I/O bandwidth;
determining a second set of active devices that have more I/O bandwidth requested than the initial I/O bandwidth assigned thereto and thus require extra I/O bandwidth;
determining a third set of active devices that are in the second set and have a priority assigned thereto; and
reallocating the extra I/O bandwidth from the first set to a combination of the second set and the third set, wherein reallocation to the third set is given priority over the reallocation to the second set.

37. (New) The apparatus of claim 36, wherein said circuitry reallocates the extra I/O bandwidth by

decreasing the initial I/O bandwidth of each of the active devices in first set to the I/O bandwidth requested therefore; and

increasing the initial I/O bandwidth of the combination of the second set and the third set based on the total amount of extra I/O bandwidth associated with the first set.

38. (New) The apparatus of claim 37, wherein said circuitry increases the initial I/O bandwidth by

increasing the initial I/O bandwidth amount for the third set; and

if there is additional extra I/O bandwidth, increasing the initial I/O bandwidth amount for the second set.

39. (New) A system comprising:
a storage controller to process I/O (input/output) requests from a plurality of peripheral storage devices; and
a driver capable of:
determining a reserved bandwidth for the storage controller;

determining available controller bandwidth by subtracting reserved bandwidth from total bandwidth;

determining number of devices actively communicating with the storage controller;

assigning an initial bandwidth to each of the active devices, wherein the initial bandwidth is the available controller bandwidth divided by number of active devices;

determining bandwidth requested for each of the active devices;

determining a first set of active devices that have less bandwidth requested than the initial bandwidth assigned thereto and thus have extra bandwidth;

determining a second set of active devices that have more bandwidth requested than the initial bandwidth assigned thereto and thus require extra bandwidth;

determining a third set of active devices that are in the second set and have a priority assigned thereto; and

reallocating the extra bandwidth from the first set to a combination of the second set and the third set, wherein reallocation to the third set is given priority over the reallocation to the second set.

40. (New) The system of claim 39, wherein said driver reallocates the extra I/O bandwidth by

decreasing the initial I/O bandwidth of each of the active devices in first set to the I/O bandwidth requested therefore; and

increasing the initial I/O bandwidth of the combination of the second set and the third set based on the total amount of extra I/O bandwidth associated with the first set.

41. (New) The apparatus of claim 40, wherein said driver increases the initial I/O bandwidth by

increasing the initial I/O bandwidth amount for the third set; and

if there is additional extra I/O bandwidth, increasing the initial I/O bandwidth amount for the second set.

42. (New) A method comprising:

determining number of devices actively communicating with an input/output (I/O) controller;

assigning an initial I/O bandwidth to each of the active devices;

determining a total requested I/O bandwidth for each of the active devices;

determining a first set of active devices that have less total requested I/O bandwidth than the initial I/O bandwidth assigned thereto and thus have extra I/O bandwidth;

calculating total amount of extra I/O bandwidth from the first set of active devices;

determining a second set of active devices that have more total requested I/O bandwidth than the initial I/O bandwidth assigned thereto and thus require extra I/O bandwidth; and

adjusting the initial I/O bandwidth for the first and the second sets by reallocating the extra I/O bandwidth from the first set to the second set.

43. (New) The method of claim 42, wherein said assigning an initial I/O bandwidth includes assigning an average I/O bandwidth, wherein the average I/O bandwidth is total I/O controller bandwidth available for assigning divided by number of active devices.

44. (New) The method of claim 42, wherein said assigning an initial I/O bandwidth includes

subtracting a reserved I/O bandwidth from the total I/O controller bandwidth to determine total I/O controller bandwidth available; and

dividing total I/O controller bandwidth available by the number of active devices.

45. (New) The method of claim 42, wherein said assigning an initial I/O bandwidth includes assigning at least a minimum I/O bandwidth.

46. (New) The method of claim 42, wherein said adjusting the initial I/O bandwidth includes

decreasing the initial I/O bandwidth of each of the active devices in first set to the I/O bandwidth requested therefore; and

increasing the initial I/O bandwidth of at least a subset of the active devices in the second set based on the total amount of extra I/O bandwidth associated with the first set.

47. (New) The method of claim 46, wherein said increasing the initial I/O bandwidth includes

- determining number of active devices in the second set;
- calculating an I/O bandwidth add amount by dividing total amount of extra I/O bandwidth associated with the first set by number of devices in the second set; and
- adding the I/O bandwidth add amount to the initial I/O bandwidth amount for the active devices in the second set.

48. (New) The method of claim 46, wherein said increasing the initial I/O bandwidth includes

- determining number of active devices in the second set that have a priority assigned;
- calculating a priority I/O bandwidth add amount by dividing total amount of extra I/O bandwidth associated with the first set by priority number in the second set; and
- adding the priority I/O bandwidth add amount to the initial I/O bandwidth amount for the number of priority devices in the second set.

49. (New) The method of claim 46, wherein said increasing the initial I/O bandwidth includes

- determining if active devices in the second set have a priority assigned;
- increasing the initial I/O bandwidth amount for any priority devices in the second set; and
- if there is additional extra I/O bandwidth, increasing the initial I/O bandwidth amount for the remaining active devices in the second set.

50. (New) The method of claim 42, wherein said determining a total requested I/O bandwidth for an active device includes

- determining amount of I/O bandwidth queued for the active device;
- determining amount of active I/O bandwidth for the active device; and

adding the I/O bandwidth queued and the active I/O bandwidth.